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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/576,113	05/22/2000	Marijn E. Brummer	5543-5	2804

826 7590 03/26/2003

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EXAMINER

LU, TOM Y

ART UNIT PAPER NUMBER

2621

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/576,113

Applicant(s)

BRUMMER, MARIJN E.

Examiner

Tom Y Lu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 May 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozeki et al (U.S. Patent No. 4,674,046) in view of Adler et al (U.S. Patent No. 5,946,370).

a. As applied to Claim 1, which is representative of claims 8 and 14, Ozeki discloses an image device for acquiring one or more plane images of the subject (Ozeki at column 3, lines 14-15, discloses a CT image scanning device for acquiring projection data); for generating a 3-D model based upon the one or more plane images acquired from the imaging device (Ozeki at column 3, lines 25-29, discloses means for forming an object image for three-dimensionally displaying the object in accordance with the three-dimensional image data obtained by the interpolating means); an input device for receiving operator input (Ozeki at column 3, line 29, discloses a coordinate information input device for externally entering coordinate information, such input device is keyboard 14), wherein the operator input defines an operator defined plane (Ozeki at column 3, lines 30-34, discloses means for changing a viewpoint of the object image in accordance with coordinate information entered by the coordination information input device. Examiner interprets changing a viewpoint of the object as defining an image

plane, such image slice designated by the coordinate information input device corresponds to the claimed "operator defined plane"), and wherein a scan model of the operator defined plane is incorporated into the 3-D model, and a display for presenting the 3-D model, wherein the 3-D model includes the operator defined plane, such that the operator can define an orientation of the operator defined plane in relation to one or more subject landmarks defined by the plane image acquired from the imaging device (Ozeki at column 3, lines 34-39, discloses means for superposing on the object image a slice position image of a slice having a position and an angle which are designated by the coordinate information entered by the coordinate information input device, thereby three-dimensionally displaying the slice position image. Examiner interprets by three-dimensionally displaying the slice position image, which the claimed "operator defined plane" is inherently incorporated into the 3-D model). Ozeki at column 3, lines 21-25, discloses means for interpolating a plurality of tomographic images obtained by the CT image scanning device to obtain a three-dimensional image data of a region defined by two outermost slices of the plurality of slices. However, Ozeki does not disclose a 3-D model device. Adler at column 4, lines 41-44, discloses a geometric modeling program 200 stored in memory 156 running on CPU 152 of the computer 150 reads in the CT images 160 and projection data 170, and computes the constructed model of vertebra 180. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have a 3-D model device in communication with the imaging device. One of ordinary

skill in the art would have been motivated to do this because linear interpolation is performed for the respective slices in accordance with a plurality of resultant parallel slice data to obtain the three-dimensional image data in Ozeki's system. Adler's system contains a constructed 3-D model 180 that reduces the computing time and resources of going through interpolation process every time to construct a 3-D image by storing constructed 3-D models in its database.

- b. As applied to Claim 2, which is representative of claim 9, Ozeki discloses a scan geometry module that communicates with the input device to receive the operator input (Ozeki at column 5, lines 21-23, discloses an interactive system between an operator and a machine, such interactive system inherently contains the claimed "geometry module"), wherein the scan geometry module generate scan geometry parameters representative of the operator input and communicates the scan geometry parameters to the imaging device such that the image device can acquire the operator defined plane (Ozeki at column 6, lines 44-46, discloses the operator can change the image to designate a slice while observing the three-dimensional image displayed on the CRT display 17, such a slice corresponds to the claimed "operator defined plane").
- c. As applied to Claim 3, which is representative of claims 10 and 15, Ozeki discloses wherein the 3-D model device updates the 3-D model to include the acquired operator defined plane (Ozeki at column 7, lines 5-9, discloses when the input 42 is entered at the keyboard 14, an expected slice position image is interpolated in accordance with the three-dimensional image data and is

displayed, which corresponds to the claimed “updates the 3-D model to include the acquired operator defined plane”).

- d. As applied to Claim 4, which is representative of claims 11 and 17, Ozeki discloses wherein the input device enables the operator to define a new operator defined plane after the 3-D model has been updated to include the previously acquired operator defined plane (Ozeki at column 7, lines 18-20, discloses the operator is allowed to enter another slice).
- e. Referring to Claim 5, Adler discloses a constructed model 180, which includes a scan model, for receiving the scan geometry parameters, and a subject model, for receiving image data from the imaging device.
- f. Referring to Claim 6, Ozeki discloses wherein the imaging device is selected from one of the group consisting of a magnetic resonance image scanner and an ultrasound machine (Ozeki at column 4, line 57, discloses using magnetic resonance).
- g. As applied to Claim 7, which is representative of claims 12, 13 and 16, Ozeki discloses wherein the input device enables the operator to alter the orientation of the operator defined plane in the 3-D model (Ozeki at column 6, lines 44-59, discloses the operator can change the image to designate a slice while observing the three-dimensional image displayed on the CRT display 17), such that the operator can interactively manipulate and view, via the display, the defined plane in the 3-D model to facilitate the determination of a desired operator define plane (The input 35 at the keyboard 14 and the input 36 at the coordinate information

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input device 15, and the three-dimensional display processing are repeated until a slice position image setting command is entered).


Conclusion

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y Lu whose telephone number is (703) 306-4057. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on (703) 305-4706. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-5397 for regular communications and (703) 305-5397 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Tom Y. Lu
March 10, 2003



LEO BOUDREAU
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